

6.1
5-
2p

ACCESSIONS ROOM
RECEIVED

JAN 28 1916

UNIV. OF MICH.
LIBRARY
51-10

Proceedings of the American Academy of Arts and Sciences.

VOL. 51. No. 10.—JANUARY, 1916.

CONTRIBUTIONS FROM THE GRAY HERBARIUM OF
HARVARD UNIVERSITY.

NEW SERIES.—No. XLV.

- I. *Compositae* new and transferred, chiefly Mexican. By S. F. BLAKE.
- II. New, reclassified, or otherwise noteworthy Spermatophytes. By B. L. ROBINSON.
- III. Certain *Borraginaceae* new or transferred. By J. FRANCIS MACBRIDE.

(Continued from page 3 of cover.)

VOLUME 51.

1. THAXTER, ROLAND.— New Indo-Malayan Laboulbeniales. pp. 1-51. August, 1915. 70c.
2. BRIDGMAN, P. W.— Polymorphic Transformations of Solids under Pressure. pp. 53-124. September, 1915. \$1.00.
3. WARREN, CHARLES H.— A Quantitative Study of Certain Perthitic Feldspars. pp. 125-154. October, 1915. 50c.
4. DALY, REGINALD A.— The Glacial-Control Theory of Coral Reefs. pp. 155-251. November, 1915. \$1.25.
5. WHEELER, WILLIAM MORTON.— The Australian Honey-Ants of the Genus *Leptomyrmex* Mayr. November, 1915. pp. 253-286. 50c.
6. KOFOID, CHARLES ATWOOD, and SWEZY, OLIVE.— Mitosis and Multiple Fission in *Trichomonad* Flagellates. pp. 287-379. 8 pll. November, 1915. \$1.50.
7. JACKSON, DUNHAM.— Expansion Problems with Irregular Boundary Conditions. pp. 381-417. November, 1915. 70c.
8. KENNELLY, A. E., and AFFEL, H. A.— The Mechanics of Telephone-Receiver Diaphragms, as Derived from their Motional-Impedance Circles. pp. 419-482. November, 1915. \$1.25.
9. MAYOR, J. W.— On the Development of the Coral *Agaricia fragilis* Dana. pp. 483-511. 6 pll. December, 1915. 90c.
10. BLAKE, S. F.— (I) *Compositae* new and transferred, chiefly Mexican; (II) ROBINSON, B. L.— New, reclassified, or otherwise noteworthy *Spermatophytes*; (III) MACBRIDE, J. FRANCIS.— Certain *Borraginaceae* new or transferred. pp. 513-548. January, 1916. 50c.





Proceedings of the American Academy of Arts and Sciences.

VOL. 51. No. 10.—JANUARY, 1916.

ISSUED

JAN 18 1916

CONTRIBUTIONS FROM THE GRAY HERBARIUM OF
HARVARD UNIVERSITY.

NEW SERIES.—No. XLV.

- I. *Compositae* new and transferred, chiefly Mexican. By S. F. BLAKE.
- II. New, reclassified, or otherwise noteworthy Spermatophytes. By B. L. ROBINSON.
- III. Certain *Borraginaccae* new or transferred. By J. FRANCIS MACBRIDE.

CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD
UNIVERSITY.—NEW SERIES, NO. XLV.

Presented by B. L. Robinson, June 17, 1915.

Received June 17, 1915.

I. COMPOSITAE NEW AND TRANSFERRED, CHIEFLY
MEXICAN.

By S. F. BLAKE.

SERICOCARPUS BIFOLIATUS (Walt.) Porter var. **Collinsii** (Nutt.) Blake, n. comb.—*Aster Collinsii* Nutt.! Journ. Acad. Nat. Sci. Philad. vii. 82 (1834). *Sericocarpus Collinsii* Nutt. Trans. Am. Philos. Soc. ser. 2. vii. 302 (1841). *Sericocarpus tortifolius* (Michx.) Nees var. *Collinsii* (Nutt.) Torr. & Gray, Fl. N. Am. ii. 103 (1841).—Nuttall's type in the British Museum, collected by Ware in eastern Florida, has obovate leaves, 3-5-toothed above the middle, but is indistinguishable in any other character from the ordinary form of the species. So noteworthy a variation, although not recognized by Dr. Gray in the Synoptical Flora, seems to merit varietal rank.

SERICOCARPUS RIGIDUS Lindl. var. **californicus** (E. Dur.) Blake, n. comb.—*Sericocarpus californicus* E. Durand! Journ. Acad. Nat. Sci. Philad. (Pl. Pratt.) ser. 2. iii. 90 (1855).—All the Californian specimens of *Sericocarpus rigidus* examined, including the type of *S. californicus* in the herbarium of the Muséum d'Histoire Naturelle at Paris, collected near Nevada City by Rattan, differ from the nearly glabrous northern forms of the species in their more or less densely short-hispid-pilose stems, and appear to constitute a well defined geographical variety.

GYMNOLOMIA obscura Blake, n. sp. Annuæ tenuis erecta sursum parce ramosa 1.9-3.5 dm. alta. Caulis leviter striatus hispidulus et strigosus pallide brunneus. Folia inferiora (3-7-juga) opposita superiora alterna oblongo-ovata vel oblongo-lanceolata vel lanceolata acuta vel subacuminata basi cuneata crenato-dentata (dentibus ca. 7-9-jugis appressis rotundatis) vel superiora integra supra viridia subdense tuberculato-strigosa subtus distincte pallidiora subsparsè strigoso-hispida (pilis venas secundum longioribus) et sparse glanduloso-adspersa triplinervia 2.7-4.7 cm. longa 9-13 mm. lata, petiolis vix marginatis patenti-hispido-pilosis 3-5 mm. longis; ea inflores-

The Gray Herbarium of Harvard University 1-24-169

scentiae multo reducta bracteiformia. Capitula 6-9 parva (2 cm. lata) in pedunculis axillaribus et terminalibus 2.3-8.5 cm. longis monocephalis nudis vel bracteatis interdum etiam (vix normaliter) ex axillis inferioribus orientibus insidentia. Discus 6.5 mm. altus 7 mm. crassus maturitate valde convexus. Involucri 2-seriati vix gradati 3.5-5 mm. alti squamae herbaceae praecipue superne hispidopilosae lanceolatae vel ovatae (tum supra mediam partem abrupte angustatae acuminatae) acutae mucronulatae rarius obtusae. Radii ca. 6 flavi neutrales oblongi emarginulati dorso minute strigillosi 7 mm. longi 3.5 mm. lati. Corollae disci flavae 1.6-1.9 mm. longae (tubo glanduloso basi non ampliato 0.5 mm. longo). Paleae receptaculi valde convexi subhyalino-scariosae in carina sursum et apice viridescentes supra sparse breviter pilosae et ciliatae apice abrupte acutae mucronulatae 3.3 mm. longae. Achaenia oblongo-obovoidea parum incrassata glabra striata albido-nigro-maculosa 2 mm. longa 1 mm. lata. Pappus nullus.—VERA CRUZ: Maltrata, Jan. 1883, *Kerber* 211 (TYPE COLL.: Brit. Mus., Kew). Vernacular name "Acaguale."—Distributed as a *Scleropus* (i. e. *Sclerocarpus*) under an unpublished name attributed to Schultz Bipontinus, which as originally used by Schultz can have had no application to the specimens. The species comes near *G. longifolia* and *G. annua* Rob. & Greenm., but is distinct in its short involucre.

GYMNOLOMIA hypochlora Blake, n. sp. Herbacea alta erecta supra ramosa. Caulis tenuis purpurascens striatulus hispidulo-strigillosus. Folia (saltem media et superiora) alterna lanceolata vel oblongo-lanceolata acuminata basi cuneata obscure serrulata (dentibus ca. 11-jugis appressis) ca. 1-1.5 cm. supra basin valde trinervia reticulata supra viridia tuberculato-strigosa aetate lepidota subtus non pallidiora venas et venulas secundum hispidula inter venas plus minusve glandulari-granulosa 8-13.5 cm. longa 1.7-2.7 cm. lata. Petioli hispido-piloso-ciliati 3 mm. longi. Capitula ca. 11 apice caulis laxo cymoso-paniculata 3.5 cm. lata, pedunculis striatis sparse tuberculato-strigillosis nudis vel 1-2-bracteolatis 5-13 cm. longis. Discus 1-(fructu) 1.4 cm. altus 1.4-(fructu) 1.9 cm. crassus. Involucri 5-seriati gradati discum superantis squamae serierum 3 exteriorum herbaceae lanceolatae vel oblongo-lanceolatae acuminatae plus minusve involutae nigrescenti-virides hispido-piloso-ciliatae et intus strigillosae basi induratae apice valde reflexae, eae serierum interiorum oblongae obtusae vel obtusiusculae apice submembranaceo maturitate elongato discum superantes ciliolatae infra paullum induratae plus minusve strigillosae. Radii 12 neutrales flavi oblongi 1.5 cm. longi

4 mm. lati. Corollae disci flavae in basi tubi ampliata etiam basi faucium puberulae 5.5 mm. longae (tubo 1.2 mm.). Paleae supra purpurascens et strigillosae apice abrupte acuminatae 6.8 mm. longae. Achaenia glabra substriata oblonga 3 mm. longa 1 mm. lata. Pappus nullus.—JALISCO: mountains above Etzatlán, 2 Oct. 1903, Pringle 11537 (TYPE COLL.: Kew).—Distributed as *G. Ghiesbreghtii* Hemsl., but that has mainly opposite leaves whitened beneath with a dense strigilosity.

Haplocalymma Blake, n. genus *Helianth.-Verbesin.*, *Hymenostephium* Benth. proximum, a quo involucri uniseriato 5-phylo et foliis alternis imprimis differt.—Capitula heterogama radiata, floribus radii neutris disci hermaphroditis fertilibus. Involucri subcampanulati bracteae 5 uniseriatæ oblongo-lanceolatae acuminatae adpressae apice paulum patentes subherbaceae intus subinduratae 3-5-nerviae dense strigosae flores radii subtendentes. Receptaculum parvulum convexiusculum, paleis complicatis flores disci amplectentibus onustum. Corollae radii 5 ligulatae flavae parvae ovales ca. 6-nerviae emarginatae; disci ca. 16 regulares flavae puberulae tubo brevissimo faucibus cylindricis apice 5-fidae. Antherae basi subauriculatae apice appendice deltoideo-ovata flavae munitae. Styli rami obtusiusculi hirti non appendiculati. Achaenia radii abortiva; disci parva oblonga a latere subcompressa subsparsae villosae. Pappus e squamellis 6 hyalinis latis profunde laceratis duabus in angulis achenii paulo longioribus compositus.—Herba ramosa tenuis strigillosa, capitula numerosa parvula in paniculis cymosis subdensis 3-5-cephalis ramosis dichotome ramosos terminantibus gerens. Folia (saltem media et superiora) alterna ovata grosse sinuato-dentata dentibus acutissime mucronatis.—Species unica *Viguiera microcephala* Greenm.

HAPLOCALYMMA microcephalum (Greenm.) Blake, n. comb.—*Viguiera microcephala* Greenm. Proc. Am. Acad. xxxix. 105 (1903).—MORELOS: limestone hills near Yautepec, 7 Nov. 1902, Pringle 8717 (TYPE COLL.: Brit. Mus., Kew); near Cuernavaca, 1905, Lemmon 85 (Kew).

The genus *Haplocalymma* (ἀπλοῦς, *simple*, and κάλυμμα, *covering*, from the uniseriate involucre) differs from its near ally *Hymenostephium* Benth. of southern Mexico, Central America and Colombia in its strictly uniseriate 5-leaved involucre (of 2-3 series in *Hymenostephium*) and its alternate leaves, but in pappus characters agrees perfectly with *Hymenostephium angustifolium* Benth. From *Viguiera*, to which its relationship is rather less close, it may be distinguished by the character of its pappus and involucre. The group of *Viguiera*

most nearly approaching it, including *V. tenuis* Gray and *V. gracillima* Brandege, has the phyllaries 2-sub-3-seriate and distinctly more numerous, while the pappus is typical of that of *Viguiera*, consisting of two slender awns sharply differentiated from the four to six shorter squamellae.

VIGUIERA adenophylla Blake, n. sp. Herbacea supra ramosa ramis erectis. Caulis purpureo-brunneus plus minusve glanduloso-puberulus sursum appresse pilosulus subflexuosus. Folia alterna late ovata acuminata basi cuneata vel abrupte truncata in petiolum cuneate angustata crenato-dentata (dentibus 17-21-jugis depresso-deltoides mucronatis) apice acuminato integro trinervia supra subappresse pilosula (pilis basi glandularibus vix tuberculatis) infra non pallidiora glandulosa pilosula 8.5-10.5 cm. longa 4.6-7 cm. lata. Petioli glandulari-pubescentes 1.8-2 cm. longi. Capitula ca. 26 cymoso-paniculata 2.8 cm. lata. Discus 8-13 mm. altus 7-10 mm. crassus. Involucris 6 mm. alti biseriati subgradati squamae lanceolatae vel ovato-lanceolatae acutae subherbaceae basi plus minusve induratae costatae in margine et plus minusve dorsaliter sordide albido-pilosiusculae et glandulosae. Radii 8 flavi obovales emarginati in venis dorsi puberuli 10-12 mm. longi 5.5-6 mm. lati. Corollae disci flavae subappresse pilosulae 6 mm. longae (tubo 1.3 mm.) faucibus campanulato-infundibuliformibus. Paleae oblongae mucronatae acutae margine flavidae apice eroso-denticulatae dorso sordide pilosiusculae parce glandulosae 8-9 mm. longae. Achaenia (immatura) sericea. Aristae 2 paleaceae oblongo-lanceolatae acutae vel obtusae fimbriatae inaequales 2.8-3.5 mm. longae; squamellae 4 longiores liberae oblongae lacerato-fimbriatae ca. 1.2 mm. longae et ca. 4 parvae intermediae laceratae.—SAN LUIS POTOSI: alt. 1830-2440 m., 1878, *Parry & Palmer* 467 (TYPE COLL.: Brit. Mus., Gray Herb., Kew).—Not closely related to any other species.

VIGUIERA angustifolia (H. & A.) Blake, n. comb.—*Tithonia pachycephala* H. & A. ! Bot. Beech. Voy. 299 (1840), not DC. (err. iden.). *T. angustifolia* H. & A. ! l. c. 435 (1841). *Viguiera blepharolepis* Gray! Proc. Am. Acad. xix. 5 (1883).—The type of *Tithonia angustifolia* H. & A. (Tepic, *Sinclair*, hb. Kew.) is identical with *Seemann* 1481, from Cerro de Pinal, type collection of *V. blepharolepis*, and not at all the same as *V. buddleiaeformis* (DC.) B. & H. f., although considered by Bentham (B. & H. f. Gen. ii. 375 (1873)) to be identical with the latter species. The only previous *Viguiera angustifolia*, that of Glaziou, Mém. Soc. Bot. France, iii. 412 (1910), is merely a nomen nudum.

VIGUIERA bicolor Blake, n. sp. Frutex ramosus verosim. ad 1 m. altus. Ramuli juniores canescenti-strigillosi seniores cano-brunnei subglabrati. Folia subopposita vel superiora alterna rotundata vel rotundato-ovata apice retusa vel rotundata vel obtusa basi truncato-rotundata trinervia supra (siccitate) nigro-viridia aspere strigillosa subtus densissime griseo-strigillosa venosa 1.2–1.8 cm. longa 8–18 mm. lata margine plus minusve revoluta. Petioli canescenti-strigillosi 5–7 mm. longi. Capitula solitaria ramulos terminantia 1.8 cm. lata. Pedunculi canescenti-strigillosi 2.8–4.3 cm. longi. Discus 6–7 mm. altus 11–12.5 mm. crassus. Involucri 3-seriati 3–4 mm. alti gradati squamae acutae densissime strigillosae exteriores oblongae 0.8 mm. latae interiores oblongo-ovatae 2 mm. latae. Radii ca. 12 flavi oblongo-ovales in dorso et tubo dense puberuli 6.5 mm. longi 3 mm. lati. Corollae disci flavae puberulae 3 mm. longae (tubo 0.5 mm.). Paleae subobtusae dorso et apice puberulae 5 mm. longae. Achaenia (immaturissima) subsericea 2.5 mm. longa. Aristae 2 inaequales ad 1.2 mm. longae; squamellae ca. 6–8 acutae inaequales laciniatae multo breviores.—**HIDALGO** (?): between Rio Grande and Jamaltepec (?), Dec. 1829, *C. Ehrenberg* 1227 (TYPES in the Berlin Herb. and the Gray Herb.).—From its nearest ally, *V. brevifolia* Greenm., the present species differs chiefly in foliar characters. The leaves of *V. brevifolia* are ovate to triangular-ovate, usually acute but sometimes obtuse, and usually strongly canescent above, on petioles 2–3 mm. long; the awns of the pappus about 1 mm. long, equalling the squamellae. Ehrenberg's plant in the Berlin Herbarium was marked as a new species under an unpublished generic name equivalent to *Gymnolomia* by Schultz Bipontinus, who could scarcely have given it more than a very casual inspection to refer it to this genus the salient character of which is the absence of pappus.

VIGUIERA Brandegei Blake, n. nom.—*Aspilium hispida* Brandege! Univ. Calif. Pub. Bot. iv. 94 (1910), not *Viguiera hispida* Baker in Mart. Fl. Bras. vi. pt. 3. 220 (1884).—The pappus of this species, of about 4 oblong irregularly lacerate squamellae with 1 or 2 longer similar aristae, is that of *Viguiera* rather than *Aspilium*. Among Mexican species *V. Brandegei* is most closely related to *V. tenuis* Gray and *V. gracillima* Brandege. The species is renamed in honor of its original describer, whose publications have for many years been adding largely to our knowledge of the flora of Mexico and Lower California.

HELIANTHUS leptocaulis (Wats.) Blake, n. comb.—*Viguiera leptocaulis* Wats. ! Proc. Am. Acad. xxvi. 140 (1891).—Watson's

Viguiera leptocaulis, the type of which (Pringle 2247, from near Monterey) was examined at the Gray Herbarium by the writer some months ago, in its involucre, wholly deciduous pappus, and general habit agrees much better with the genus to which it is here referred than with that in which it was originally placed. It seems quite distinct from any described Mexican *Helianthus*.

Phoebanthus Blake, n. genus *Helianth.-Verbesin.* — Capitula heterogama radiata, floribus radii 1-seriatis neutralibus disci hermaphroditis fertilibus. Involucrum hemisphaericum, bracteis 3-seriatis vix gradatis eis duarum serierum exteriorum lineari-lanceolatis acuminatis infra valde induratis costatis supra appendice herbacea laxa multo longiore praeditis sparse tuberculati-hispidis eis seriei intimae latioribus brevioribus solummodo acutis apice obscurissime subherbaceis appressis flores radii subtendentibus. Receptaculum convexum, paleis complicatis flores disci amplectentibus. Corollae radii ligulatae patentes anguste oblongae apice 2-3-denticulatae; disci regulares tubulosae, tubo brevi faucibus elongatis cylindraceis apice breviter 5-fidae. Antherae basi valde sagittatae apice appendice ovali vel oblongo-ovata obtusa munitae, filamentis vel in tubum clausum connatis vel liberis. Styli florum disci rami lineares elongati hirti appendice lineari-oblonga hirti muniti. Achaenia radii trigona abortiva; disci subglabra valde incrassata subquadrangularia (attamen a latere plus minusve compressa) in angulis submarginata. Pappus ex aristis 2 interdum basi profunde laceratis tenuibus vel subpaleaceis persistentibus interdum ad dentes reductis et squamellis numerosis minutis intermediis compositus. — Herbae perennes e radice tuberiformi horizontali submoniliformi. Caulis tenuis simplex 1-3-cephalus foliosus 3-4-pedalis. Folia linearia alterna (paucis inferioribus oppositis exceptis) integra 1-nervia paullum revoluta plus minusve tuberculato-strigosa. Capitula magna 7 flava. Flores radii 10-20 pollicares et ultra; disci numerosi. — Species typica *Helianthella grandiflora* Torr. & Gray. — *Helianthus* L. subgen. *Pseudo-helianthus* Gray, Syn. Fl. i. pt. 2. 285 (1884).

1. **PHOEBANTHUS grandiflorus** (Torr. & Gray) Blake, n. comb. — *Helianthella grandiflora* Torr. & Gray, Fl. N. Am. ii. 333 (1842).

2. **PHOEBANTHUS tenuifolius** (Torr. & Gray) Blake, n. comb. — *Helianthella tenuifolia* Torr. & Gray, Fl. N. Am. ii. 333 (1842).

The two species of *Phoebanthus* (Φοῖβος, *Phoebus*, the sun, and ἄνθος, *flower*) form a small group very similar to *Helianthus* in habitual characters, but technically more closely allied to *Helianthella*. From the former *Phoebanthus* differs sufficiently in the numerous short

persistent squamellae united into a low denticulate crown, from the latter in habit and achenial characters, as also in range, the species of *Helianthella* being West American and Mexican, of *Phoebanthus* Floridan. The species of *Helianthella*, which after the exclusion of *Enceliopsis* and *Pseudo-helianthus* of the Synoptical Flora are restricted to the subgenus "*Helianthella* proper" of that work, are perennial herbs with rather few lanceolate to oblong-lanceolate usually ample leaves, alternate or opposite, of which the basal are generally much larger, phyllaries for the most part herbaceous or often enlarged and foliaceous, and achenes very strongly flattened (as in *Encelia*), on the margin villous or glabrate, with 2 longer or shorter awns and a corona of thin squamellae of varying length, united below or distinct to the base.

Although the genus *Helianthella* on its first publication (Torr. & Gray, l. c.) was divided into two groups, of which the first (§1, without name) contained only the two species here referred to *Phoebanthus*, while the second had three species (*H. Douglasii*, *H. lanceolata*, and *H. uniflora*) all still retained in *Helianthella*, I have not thought it advisable to consider the *H. grandiflora* group as typical, on the ground of priority of position, and to create a new name for the second group, both because a considerably greater number of name changes would be involved and because the *H. Douglasii* group was considered by Gray himself (see Proc. Am. Acad. xix. 9 (1883); Syn. Fl. i. pt. 2. 284 (1884)) as typical of the genus.

Pionocarpus Blake, n. genus *Helianth.-Verbesin.*—Capitula heterogama radiata, floribus radii 1-seriatis neutralibus disci hermaphroditis fertilibus. Involucrum hemisphaericum, bracteis 2-seriatis (exterioribus paullulo brevioribus) anguste ovato-lanceolatis acuminatis herbaceis subcostatis plus minusve piloso-hispido-ciliatis. Receptaculum convexum, paleis complicatis acuminatis flores disci amplectentibus onustum. Corollae radii ligulatae patentes oblongae; disci regulares, tubo brevissimo faucibus cylindraceis limbo 5-dentato. Antherae basi cordato-sagittatae apice appendice ovata obtusa praeditae. Styli rami lineares hirti appendice lineari-lanceolata longa hirtella praediti. Achaenia radii inania; disci oblonga pubescentia apice truncata valde incrassata paullum a latere compressa immarginata. Pappus persistens ex aristis 2 subaequalibus subtenuibus et squamellis ca. 10 multo minoribus laceratis basi ima unitis interdum una duabusve elongatis compositus.—Herba perennis subscaposa e radice verticali crassa tuberiformi. Caulis parcissime ramosus ca. 4-cephalus. Folia maxima ex parte radicalia lineari-lanceolata

utrinque acuminata longe petiolata subintegra caulina 3-4 (infra mediam partem caulis). Capitula majuscula longe pedunculata, pedunculis basi unibracteatis. Flores radii ca. 10 flavi, disci numerosi flavi.—Species unica *Helianthella madrensis* Wats.

PIONOCARPUS madrensis (Wats.) Blake, n. comb.—*Helianthella madrensis* Wats.! Proc. Am. Acad. xxiii. 278 (1888).—CHIHUAHUA: pine plains, base of the Sierra Madre, 19 Sept. 1887, Pringle 1302 (TYPE COLL.: Kew).

The genus *Pionocarpus* (πῖων, fat, and καρπός, fruit) is distinguished from *Helianthella* chiefly by characters of the achene and style. The achenes of *Pionocarpus* are strongly thickened, unmarginated, and broadly truncate at apex, and the style-branches bear a long hirtellous appendage. In *Helianthella*, on the contrary, the achenes are very flatly compressed, as in *Encelia*, are more or less distinctly white-margined, and at the true apex are much narrower than the body, the more or less united squamellae being borne in a notch at the summit of the achene between the two awns. From *Phoebanthus*, to which its relationship is rather closer, *Pionocarpus* is separated by its habit and by the much more conspicuous squamellae.

PERYMENIUM blepharolepis Blake, n. sp. Frutex ramosus. Caulis densissime strigillosus cortice cano-brunneo tectus aetate glabratus; rami tenues subquadrangulares strigillosi fusco-brunnei. Folia opposita ovata subacuminata basi cuneata vel cuneato-rotundata trinervia appresse serrata (dentibus 7-8-jugis) supra viridia strigillosa pilis basi tuberculatis subtus pallidiora non canescentia strigosa et strigillosa plus minusve glanduloso-adspersa 2.5-3.8 cm. longa 10-17.5 mm. lata. Petioli tuberculato-strigosi 2 mm. longi. Capitula 1.5-2 cm. lata in apicibus ramorum 5-7 sublaxe cymoso-paniculata in pedunculis axillaribus et terminalibus strigillosis 1.2-4.5 cm. longis. Discus 7-9.5 mm. altus 6-8 mm. crassus. Involucri 3-sub-4-seriati gradati 7 mm. alti squamae exteriores ovatae interiores ovato-lanceolatae plus minusve strigillosae et ciliatae infra subinduratae pallidae ca. 5-nerviae apice laxo angustato subacuto herbaceo. Radii 8 fertiles aurei oblongo-ovales bidenticulati in venis dorso plus minusve puberuli 7-5 mm. longi 3 mm. lati. Corollae disci aureae in dentibus hirtellae 4.8-5 mm. longae (tubo 1.4-1.5 mm.). Paleae obtusae supra strigillosae in margine et carina spinuloso-ciliolatae 5.8-7 mm. longae. Achaenia juventate plus minusve piloso-hispida maturitatem vergentia sparse hispidula. Pappi aristae ca. 12 caducae ad 1.3 mm. longae subaequales (2 longioribus 3 mm. longis exceptis).—PUEBLA: Coxcatlan, alt. 2135-2440 m., Sept. 1909, Purpus 4143

(TYPE COLL.: British Museum).—Most nearly related among described species to *P. verbesinoides* DC., but distinct in its longer looser phyllaries, fewer longer-peduncled heads, and in its distinctly paler leaves, which are much less reticulate beneath.

PERYMENIUM hypoleucum Blake, n. sp. Frutex ramosus. Caulis strigillosus cortice griseo-brunneo tectus aetate subglabratus; rami sub-6-angulares subdense strigillosi purpureo-brunnei. Folia opposita (paucis superioribus interdum alternis exceptis) ovata vel elliptico-ovata obtusa vel acuta basi cuneato-rotundata serrata (dentibus 5-7-jugis late triangularibus subpatentibus vel appressis) pinnatinervia (venis supra impressis subtus reticulatis majoribus 3-4-jugis imis validioribus) supra viridia dense strigosa pilis basi tuberculatis subtus cum pilis densissimis appressis brevibus canescentia et subaspera 2-3 cm. longa 1.1-1.9 cm. lata. Petioli strigosi immarginati 1.5-2 mm. longi. Capitula 1 cm. lata ad apices ramorum 4-10 dense cymoso-paniculata in pedunculis dense strigosis 3-8 mm. longis disposita. Discus 6-8 mm. altus 5-7 mm. crassus. Involucri 4-seriati gradati 4 mm. alti squamae solummodo apice herbaceae infra induratae pallidae dense strigillosae obtusae vel rotundatae extimae elliptico-ovatae interiores deltoideo-ovatae vel late ovales intimae 3-nerviae. Radii fertiles ad 7 ovales aurei 2-3-denticulati in venis dorso hirtelli 3.5 mm. longi 2 mm. lati. Corollae disci flavae in dentibus et interdum tubo hirtellae 3.5 mm. longae (tubo 1 mm.). Paleae in carina infra glandulosae supra subspinulosae in margine denticulato-spinulosae apice abrupte acutae 3.7 mm. longae. Achaenia (imaturissima) in angulis hispidula. Pappi aristae ca. 8 caducae spinulosae subaequales (una duabusve duplo longioribus exceptis).—PUEBLA: vicinity of San Luis Tultitlanapa, near Oaxaca, 9 July 1908, *Purpus* 3087 (TYPE COLL.: British Museum).—Distributed as *P. rude* Rob. & Greenm., from which it is very distinct. More closely related to *P. croceum* Rob. & Greenm. and *P. angustifolium* Brandege, but quite distinct from both.

PERYMENIUM leptopodum Blake, n. sp. Frutex ramosus. Caulis tenuis quadrangularis minute strigillosus cortice brunneo vel purpureo-brunneo tectus. Folia opposita ovato-lanceolata acuminata basi cuneata trinervia appresse serrata (dentibus 8-10-jugis) supra obscure viridia minute strigilloso-scabra subtus non pallidiora glanduloso-adpersa venas et venulas secundum strigillosa 4.6-6.3 cm. longa 1.5-2.3 cm. lata. Petioli vix marginati tenues 9-16 mm. longi. Capitula 1.6 cm. lata in apicibus ramorum et ramulorum ternatim vel quinatim cymoso-paniculata. Pedicelli 5-19 mm. longi strigillosi.

Discus 5-7 mm. altus 4-6 mm. crassus. Involucri 3-seriati 4 mm. alti paullum gradati squamae extimae breviores late ovatae obtusae strigillosae vix ciliolatae basi coriaceo-induratae apice herbaceae mediae et intimae late oblongae subobtusae minus induratae ciliolatae et strigillosae apice subherbaceae. Radii 8 fertiles flavi ovals bidenticulati dorso glanduloso-puberuli 4.5-5.8 mm. longi 2.8 mm. lati. Corollae disci flavae in tubo puberulae 3-4.2 mm. longae (tubo 0.6-1.6 mm.), faucibus valde ampliatis. Paleae subacutae scariosae flavae in carina hispidulae margine superne lacerato-dentatae 4.2-4.6 mm. longae. Achaenia brunneo-nigrescentia transverse plus minusve rugulosa incrassata submarginata apice rotundata sparse strigillosa 1.8 mm. longa 1 mm. lata. Pappus fragilissimus ex aristas 2 tenuibus spinulosis 2.5 mm. longis et aristulis ca. 12 inaequalibus (longioribus ad 1 mm. longis) compositus.—GUATEMALA: shrubby growth, alt. 1311 m., near Coban, Jan. 1879, *von Tuerckheim* 339 (TYPE COLL.: British Museum, Kew).—This number is referred in Robinson & Greenman's revision (Proc. Am. Acad. xxxiv. 526 (1899)) to *P. gymnomioides* (Less.) DC., originally described from Vera Cruz, but differs in several important features from the description there given of that species, which is said to have entire leaves, 3-5-headed corymbs, spreading-pubescent pedicels, and much shorter petioles (3 mm. long).

CHRYSACTINIA acerosa Blake, n. sp. Frutex ramosus pedalis. Caulis tenuis brunneo-griseus minute hirtellus aetate glabratus oppositae ramosus. Folia opposita vel superiora alterna filiformi-subulata 2-4-glanduloso-punctata semiteretia supra complanata apice subulato-mucronata glabra laete viridia 6-8 mm. longa 0.25 mm. lata saepius ramulos brevissimos foliosissimos subtendentia. Pedunculi ramos terminantes monocephali glandulari-hirtelli lineari-subulato-bracteolati striati ad 1 cm. longi. Capitula (immatura) hemisphaerica 5-6 mm. alta. Involucri uniseriati 3.5 mm. alti squamae aequales 8 anguste oblongae (0.8-1.3 mm. latae) membranaceo-chartaceae viridescentes obtusae subcarinatae in margine scarioso sparse erosociliatae infra apicem glandula anguste oblonga brunnea praeditae. Radii (immaturi) aurei oblongi fertiles. Corollae disci (immaturae) aureae in dentibus minute hirtellae 4 mm. longae. Achaenia (immaturissima) pubescentia. Aristae pappi ca. 24 tenues spinulosae subaequales ad 3.5 mm. longae.—SAN LUIS POTOSI: Sierra de Guasacama, Minas de San Rafael, June 1911, *Purpus* 5136 (TYPE COLL.: British Museum, Gray Herb., U. S. Nat. Herb.).—Distributed as a narrow-leaved form of *C. mexicana* Gray, but seemingly quite distinct from that species in foliar and involucral characters.

The four species of *Chrysactinia* now known may be conveniently divided into two sections, habitally well marked but without differential characters of technical importance.

I. *CHRYSACTINIA* Gray (Pl. Fendl. 93 (1849)) sect. **Euchrysactinia** Blake, n. sect. Folia subulata integerrima. Corollae radii discique aureae.—Type *C. mexicana* Gray.

1. *C. MEXICANA* Gray, l. c. (1849).—Leaves subulate, flattened above, hirtellous on the margin, mostly alternate, 4.5–12 mm. long, 0.7–1.2 mm. wide, with rather numerous glands. Phyllaries apparently uniformly 12 in number, 4–5 mm. long.—*Pectis tarifolia* Greene! Leaf. i. 148 (1905): see Greenm. Field Columb. Mus. Bot. ii. 274 (1907).—Western Texas and New Mexico to Puebla.

2. *C. ACEROSA* Blake.—Leaves filiform-subulate, glabrous, mostly opposite, bearing 2–4 glands, 6–8 mm. long, 0.25 mm. wide. Phyllaries 8 in number, 3.5 mm. long.—San Luis Potosi.

II. *CHRYSACTINIA* sect. **Phylloloba** Blake, n. sect. Folia 3–17-pinnatilobata. Corollae radii albidæ et aurantiaco-suffultæ vel aureæ; corollae disci aurantiacæ vel aureæ.—Type *C. pinnata* Wats.

3. *C. PINNATA* Wats. ! Proc. Am. Acad. xxv. 154 (1890).—Leaves opposite, oblong, pinnatilobed almost to the midrib with 9–17 opposite oblique oblong to (uppermost) deltoid mucronate acute lobes, sparsely gland-dotted, 2.5–4.9 cm. long, 1.2–1.9 cm. wide, the lowest pair of lobes reduced and stipule-like. Rays 8, whitish, orange-tinged outside; disk orange.—Nuevo Leon: *Pringle* 2524 (TYPE).—Described by Watson as herbaceous, but apparently frutescent like the other species of the genus.

4. *C. TRUNCATA* Wats. ! l. c. (1890).—Leaves opposite or the upper alternate, ovate to ovate-oblong in outline, pinnatilobed nearly to the midrib with 3–7 mostly alternate lobes, the lobes entire or with 1–few spinulose teeth, truncate and glandular-mucronate at apex (or the terminal sometimes acute), 1.5–2.4 cm. long, 8–12 mm. wide.—Nuevo Leon: *Pringle* 2601 (TYPE).—The rays are described by Watson as bright yellow.

COREOPSIS basalis (Dietr.) Blake, n. comb.—*Calliopsis basalis* Dietr. in Otto & Dietr. Allgem. Gartenzeit. iii. 329 (17 Oct. 1835). *Calliopsis Drummondii* D. Don ! in Sweet, Brit. Fl. Gard. ser. 2. iv. t. 315 (1838). *Coreopsis Drummondii* (D. Don) Torr. & Gray, Fl. N. Am. ii. 345 (1842).—The long and detailed description by Otto & Dietrich of their *Calliopsis basalis* shows it to be identical with the

plant soon afterward described and figured by David Don as *Calliopsis Drummondii*, which has generally passed in American literature as *Coreopsis Drummondii*. The seed from which the plant was grown at the Berlin Garden was stated by Otto & Dietrich to have come from Missouri, but as it was included in a large lot of seeds received at second hand from an unknown collector there was obvious chance of error in regard to its origin, and there can be no doubt that it really came from Texas, to which the species is apparently confined. The probable identity of *Calliopsis basalis* and *C. Drummondii* was first brought to my attention through a manuscript note on a sheet in the British Museum by Mr. S. LeM. Moore, to whom I am indebted for permission to publish this note.

The form with linear or linear-oblong leaf-lobes described by Gray (Syn. Fl. i. pt. 2. 291 (1884)) as *Coreopsis Drummondii* var. *Wrightii* becomes *C. BASALIS* (Dietr.) Blake var. **Wrightii** (Gray) Blake, n. comb.

II. NEW, RECLASSIFIED, OR OTHERWISE NOTEWORTHY SPERMATOPHYTES.

By B. L. ROBINSON.

CLEOME ACULEATA L. Syst. ed. 12, iii. 232 (1768). To the synonymy of this species should be added *C. sinaloensis* Brandege, Zoe, v. 198 (1905). Authentic material of the latter, now in the Gray Herbarium, appears to agree in all features with South American specimens of *C. aculeata* L. The species has also been found elsewhere in Mexico, in Guatemala (*Deam*, no. 349), and in Honduras (*Thieme*, no. 5135 of J. D. Smith's distrib.). It thus seems to be an annual weed of rather wide distribution in tropical and subtropical America. The species was originally described by Linnaeus from American material and has been generally regarded as exclusively of this continent, but it is difficult to find a single character on which to separate from it the West African *C. ciliata* Schum. & Thonn. Besk. Guin. Pl. ii. 68 (1828) and *C. guineensis* Hook. f. in Hook. Nig. Fl. 218 (1849).

C. Fischeri, nom. nov. *C. serrulata* Pax in Engl. Bot. Jahrb. xiv. 293 (1892), not Pursh, Fl. Bor. Am. ii. 441 (1814). Pursh's homonym, rejected by Dr. Gray and by many other botanists owing to its inappropriate and un-descriptive character, is now being re-established according to the International Rules of Botanical Nomenclature. Consequently the later homonym of Pax must be renamed.

The next three new combinations, found necessary during recent work of Mr. George Safford Torrey, temporary assistant at the Gray Herbarium, are here published at Mr. Torrey's request.

HOSACKIA AMERICANA (Nutt.) Piper, var. **glabra** (Nutt.) G. S. Torrey, comb. nov. *H. elata*, β . *glabra* Nutt. in Torr. & Gray, Fl. N. Am. i. 327 (1838).

PIRIQUETA CAROLINIANA (Walt.) Urb., var. **viridis** (Small) G. S. Torrey, comb. nov. *P. viridis* Small, Fl. S. E. U. S. 794, 1335 (1903). Distinguished from varieties of the variable *P. caroliniana* merely by the degree of pubescence, and possessing no distinctive habitat or geographical range, this form seems hardly worthy of specific rank.

LYONIA FRUTICOSA (Michx.) G. S. Torrey, comb. nov. *Andromeda ferruginea* β . *fruticosa* Michx. Fl. Am. Bor. i. 252 (1803). *A. ferruginea* Pursh, Fl. Am. Sept. i. 292 (1814), not *A. ferruginea* Walt. Fl. Car.

138 (1788). *Lyonia ferruginea* Nutt. Gen. i. 266 (1818), as to plant, not as to name-bringing synonym. *Xolisma fruticosa* Nash, Bull. Torr. Bot. Club, xxii. 153 (1895).

THE STATUS OF CONVULVULUS AFRICANUS. The binomial *Convolvulus africanus* seems first to have been used by Choisy in DeCandolle's Prodrômus, ix. 342 and 418 (1845), where it is attributed to "Nick." or "Nich.," said to have been published in "h. St. Dom.," and is referred to the synonymy of *Pharbitis cathartica* (Poir.) Choisy. In the Index Kewensis, i. 600 (1895), *Convolvulus africanus* Nickols, Hort. St. Doming. 260, is referred to *Ipomoea cathartica*. This disposition of the species is also made by House in his North American Species of the Genus Ipomoea, 205 (1908). Both on nomenclatorial and geographic grounds the name *Convolvulus africanus* (1776) seemed so strange a synonym for the much later and strictly American *Ipomoea cathartica* (1816), that the writer made some search for the rare work in which the name in question was originally published. This proves to be an "Essai sur l'histoire naturelle de l'île de Saint-Domingue," published at Paris in 1776. The name of the author does not appear on the title page, but toward the end of the volume, on page 374, there is printed a note of "Approbation" by Adanson, regarding the work itself, and in this note the name of the author, [Père] Nicolson, is mentioned. It may be noted that neither the title of the work nor the spelling of the author's name is as given in the Index Kewensis.

On the page cited in the Index Kewensis (260) the only *Convolvulus* is not *C. africanus* but *C. americanus*, a species treated as follows:

"LIANE purgative.—*Syn.* Liane à médecine. Liane à Bauduit, Arepeea, *Car.* *Convolvulus Americanus*.—*Obs.* Ses tiges sont grimpantes, cylindriques, sans vrilles; elles s'entrelacent dans les branches des arbres voisins, s'y accrochent, & se replient ensuite vers la terre, y prennent racine, & forment de nouvelles plantes. On en tire un suc résineux qui se coagule, & dont on se sert pour purger. Un habitant du cul-de-sac nommé *Bauduit*, en fait un syrop purgatif qui porte son nom. Quoiqu'il soit fort en usage parmi les habitants begins page 261] tans du pays, il ne laisse pas d'être dangereux, en ce qu'il occasionne quelquefois des superpurgations. Ses feuilles sont taillées en coeur, un peu rudes, unies, sans dentelure.—*Loc.* Elle se trouve sur les mornes dans les lieux humides.—*Virt.* Elle purge violement.

LIANE purgative du bord de la mer.—*Syn.* *Convolvulus marinus*, *Catharticus*, Pl. Soldanella, *Mareg.*—*Obs.* Sa feuille est arrondie, bien nourrie.—*Loc.* On ne la trouve que sur les côtes de la mer.—*Virt.* Elle est purgative."

On page 213 of the same work occurs the following:

"CONVOLVULUS. V. Patate.

CONVOLVULUS Americanus. V. Jalap, Liane purgative.

CONVOLVULUS marinus catharticus. V. Liane purgative du bord de la mer.

CONVOLVULUS tinctorius. V. Liseron."

While on page 251 is found the following:

"JALAP.—*Syn.* Jalapa, Mirabilis, Convolvulus Americanus, Ray."

From the above we see that the references of Choisy in DC. Prod. ix. 342 and 418, of Hook. f. & Jacks. Ind. Kew. i. 600, and of House, North American Species of Ipomoea, 205, are incorrect in several particulars. The binomial is *Convolvulus americanus* not *C. africanus*. The name of the author is Nicolson, not Nickols, as given by the Index Kewensis, nor Nich., as given by Choisy (page 418). The name of the work is Essai sur l'histoire naturelle de l'isle de Saint-Domingue, obscurely abbreviated by Choisy (p. 342) to h. St. Dom., and mistakenly rendered by the Index Kewensis as Hort. St. Doming.

Finally it remains to ascertain whether this early name really belongs to the species *Ipomoea cathartica* Poir., to which it has been referred by these authors, and whether if so it should replace this later name.

The cross-references in Nicolson's work show an association by that author of his Liane purgative with *Convolvulus americanus* of Ray and also with the vernacular name Jalap. On referring to Ray's well known Historia Plantarum, iii. 372 (1704), we find three uses of the name *Convolvulus Americanus*, namely:

"17. *Convolvulus Americanus*, vulgaris folio, capsulis triquetris numerosis, ex uno puncto longis petiolis propendentibus, semine lanugine ferruginea villosa Pluk. Almag. Bot. Hujus species major habetur, **Mock-climber** Barbadosibus dicta."

"19. *Convolvulus Americanus* sub Jalapiae nomine receptus Pluk. Phyt. T. 25. F. 1. An Convolv. colubrinus Pisonis Caapeba?"

"22. *Convolvulus Americanus*, subrotundis foliis viticulis spinosis Pluk. Almag. Bot. T. 276. F. 4. An Convolvulus Peruvianus perpetuus seu Holo-luchi Hort. Farnes. Fig. 4? Reliqua vide apud Autorem."

Of these three uses of *Convolvulus americanus* by Ray, it is clear that the first (Ray's no. 17) is *Ipomoea polyanthes* G. F. W. Mey., while the third (Ray's no. 22), described as having suborbicular leaves and being spiny must have referred to Plukenet's Plate 276, fig. 3 rather than fig. 4 as stated, and was *Calonyction aculeatum* (L.) House. That it was to the second, namely Ray's no. 19, to which

Nicolson referred is clearly shown by the expression "sub Jalapiae nomine." Of this plant Plukenet gives a figure cited by Ray and doubtless in the opinion of Ray representing his plant. This figure shows a highly conventionalized twiner with alternate deltoid-ovate entire leaves and solitary short-peduncled axillary flowers. The flowers show no corolla but merely a small calyx with relatively short lobes which do not equal the tube. It is impossible to regard this figure as representing *I. cathartica* Poir. which is characterized by calyxlobes of unusual length, greatly exceeding the short tube. The writer after some search has failed to find that Linnaeus expressed any opinion in regard to the identity of this particular figure of Plukenet, and from its general lack of detail it would probably be impossible to place it with any certainty.

It may be seen from the data here assembled 1) that Nicolson made no *Convolvulus africanus*, a name which seems to have arisen from a clerical error of Choisy. 2) that Nicolson in employing the name *Convolvulus americanus* had no thought of coining a new designation or describing a new species, but was merely applying — in all probability erroneously — the pre-Linnaean *Convolvulus Americanus* of Ray to a purgative twiner of Santo Domingo. He gives no botanical characterization sufficient to give validity to the name and merely discusses briefly the pharmaceutical properties. Nicolson's type is not known and even if the plant he was treating could be ascertained it is doubtful if the botanical type of *Convolvulus americanus* would not have to be sought in the plant of Ray, whose name Nicolson was intending to apply, rather than the plant to which he perhaps mistakenly applied it. As we have seen, the plant of Ray may be traced back to a figure of Plukenet's which cannot be *I. CATHARTICA* Poir., a well known name that thus relieved of an earlier synonym retains its validity.

Ipomoea crassicaulis (Benth.), comb. nov. *Batatas* ? *crassicaulis* Benth. Voy. Sulph. 134 (1844). *Ipomoea fistulosa* Mart. ex Choisy in DC. Prod. ix. 349 (1845). *I. texana* Coult. Contrib. U. S. Nat. Herb. i. 45 (1890).

OPERCULINA ORNITHOPODA (Robinson) House, var. ***megacarpa*** (Brandegee), comb. nov. *Ipomoea* sp. Rose, Contrib. U. S. Nat. Herb. i. 344 (1895). *I. megacarpa* Brandegee, Zoe, v. 218 (1905). *Operculina Roseana* House, Bull. Torr. Bot. Club, xxxiii. 500 (1906); Bot. Gaz. xliii. 414 (1907). *Formae typicae floribus fructu etc. simillima differt foliorum segmentis multo latioribus* (0.9–3.5 cm. latitudine). The writer agrees with Mr. House that this plant, differing in range

and rather strikingly in foliage, should not be merged without distinction in *O. ornithopoda*, yet the differences are of slight moment and the divergence between the extremes is very largely bridged by intermediates. Thus the specimen collected at Agiabampo by Palmer (no. 781) has the leaf-segments ranging down to 6 mm. in breadth, being therefore considerably nearer to the form from San Luis Potosi than to Mr. Brandegee's plant from Culiacan, which has leaf-segments no less than 3.5 cm. wide. Accordingly, the varietal rank here seems preferable to the specific.

LANTANA ACHYRANTHIFOLIA Desf. Cat. Pl. Hort. Reg. Par. ed. 3, 392 (1829). To the synonymy of this species may be added *Lippia fimbriata* Rusby, Mem. Torr. Bot. Club, iv. 244 (1895), and *Lantana macropodioides* Greenm. Field Mus. Nat. Hist. Bot. Ser. ii. 339 (1912).

Stachytarpheta fruticosa (Millsp.), comb. nov. *Valerianodes fruticosa* Millsp. Field Columb. Mus. Bot. Ser. ii. 178 (1906).

PRIVA ASPERA HBK. Nov. Gen. et Spec. ii. 278 (1817). While this species is known to me only by descriptions, I fail to find any distinction by which *P. orizabae* Wats. Proc. Am. Acad. xxiii. 282 (1888) can be separated from it.

Rhaphithamnus venustus (Phil.), comb. nov. *Citharexylum venustum* Phil. Bot. Zeit. xiv. 646 (1856). *Rhaphithamnus longiflorus* Miers, Trans. Linn. Soc. xxvii. 98 (1870); Reiche, Fl. Chil. v. 306 (1908). *R. serratifolius* Miers, l. c. 99. *Citharexylon elegans* Phil. ex Miers, l. c. 98 (1870).

Vitex Bakeri, nom. nov. *V. diversifolia* Baker in Thiselton-Dyer, Fl. Trop. Afr. v. 323 (1900), not Kurz, "Andam. Rep. App. A 45; B 14" (1870?); C. B. Clarke in Hook. f. Fl. Brit. Ind. iv. 585 (1885).

Vitex viticifolia (DC.), comb. nov. *V. montevidensis* ? *multinervis* Cham. Linnaea, vii. 374 (1832). *Psilogyne viticifolia* DC. Rev. Fam. Bign. 16 (1838). *V. multinervis* (Cham.) Schauer in DC. Prod. xi. 688 (1847), also in Mart. Fl. Bras. ix. 297 (1851). The earlier specific name is here restored in accordance with Art. 49 of the International Rules of Botanical Nomenclature.

Caryopteris odorata (Hamilton), comb. nov. *Volkameria odorata* Hamilton ex Roxb. Hort. Beng. 46 (1814). *Clerodendron odoratum* (Hamilton) D. Don, Prod. Fl. Nepal. 102 (1825). *Caryopteris Wallichiana* Schauer in DC. Prod. xi. 625 (1847); Clarke in Hook. f. Fl. Brit. Ind. iv. 597 (1885).

Sphenodesme involucrata (Presl), comb. nov. *Congea unguiculata* Wall. Cat. n. 1736 (nomen). *C. ferruginea* Wall. l. c. n. 1737 (nomen). *C. paniculata* Wall. l. c. n. 1739 (nomen). *Symphorema*

paniculatum h. Heyne ex Schauer in DC. Prod. xi. 623 (1847), in synon. *Vitex involucratus* Presl, Bot. Bemerk. 148 (1844). *Sphaenodesma unguiculata* (Wall.) Schauer in DC. Prod. xi. 623 (1847).

In a recent attempt to verify the identification and labelling of the *Verbenaceae* in the Gray Herbarium, corrections were noticed which should be made in the current treatment of two species of the Galapagos Islands, namely:

1) The plants which have been treated as *Avicennia tomentosa* Hook. f. Trans. Linn. Soc. xx. 195 (1847); Anderss. Om Galap.-öarnes Veg. 201 (1853), also reprint, 82 (1857); Robinson & Greenman, Am. Jour. Sci. ser. 3, l. 147 (1895); and *A. officinalis* Robinson, Proc. Am. Acad. xxxviii. 194 (1902), not L., are referable to *A. NITIDA* Jacq.

2) The plants of the Galapagos Islands treated as *Lippia lanceolata* Rose, Contrib. U. S. Nat. Herb. i. 137 (1892), not Michx.; *L. nodiflora* Robinson & Greenman, Am. Jour. Sci. ser. 3, l. 147 (1895), not Michx.; and *L. canescens* Robinson, Proc. Am. Acad. xxxviii. 196 (1902), not HBK., are all to be referred to *L. REPTANS* HBK. Nov. Gen. et Spec. ii. 263 (1817), a species fairly well marked as to its firmer veins and more salient teeth of the leaves.

AGERATUM HOUSTONIANUM Mill., var. **muticescens**, var. nov., statura foliis pubescentia floribus etc. formae typicae simillimum differt squamis pappi flosculorum vel omnium vel plurium valde reductis muticis ca. 0.1–0.2 mm. longis.—MEXICO: Wartenberg, near Tanto-yuca, prov. Huasteca, collected in 1858, *L. C. Ervendberg*, no. 100 (TYPE, in Gray Herb.); without locality, from the herbarium of the late Dr. F. W. Klatt (Gray Herb.); cultivated in the Missouri Botanical Garden, from 1886 (when collected by Pammel) to 1896 (when a second specimen was prepared by H. C. Irish). The specimens, now in the herbarium of the Missouri Botanical Garden, show by their labelling that the plant has passed under several horticultural names, "Stella Gurney," "Cope's Pet," etc. The seed is said to have come from Haage & Schmidt's establishment. In these specimens the pappus, though for the most part short and muticous, shows some variability on one and the same plant or even in the same head, certain florets, especially the central ones and those of the terminal heads, tending to have awned scales in the manner of the typical form.

Eupatorium brachychaetum, spec. nov., herbaceum vel cum caudice ramoso 1 dm. longo paullo lignescenti; caulibus subscaposis 2–2.5 dm. altis gracilibus puberulis purpurascensibus basin versus solum foliosis apice 2–4-capitulatis; foliis oblanceolati-oblongis tenuibus oppositis 8–11 cm. longis 2–2.5 cm. latis duplice crenato-lobulatis vel

-dentatis apice obtusis vel rotundatis basi gradatim cuneatis pinnativeniis in venis sparsissime pilosiusculis concoloribus, petiolo ca. 1 cm. longo gracili; capitulis oblato-subsphaericis 1 cm. diametro in pedicellis nudis vel bracteolatis gracilibus pilosiusculis purpurascensibus adscendentibus valde inaequalibus (1-10 cm. longitudine) gestis; involucri squamis oblongis vel obovato-oblongis subbiseriatis subaequilongis striatulis glabriusculis ciliolatis vix acutis 2.5 mm. longis; flosculis 40-50; corollis glabris 2.2 mm. longis, tubo proprio cylindrico fauces campanulatas subaequant, dentibus limbi anguste deltoideis recurvatis; antheris apice appendiculatis; acheniis fuscis glabris 1.5 mm. longis; pappi setis ca. 20 inaequalibus pro genere brevibus corolla dimidio brevioribus.—CUBA: Rocky stream bed, Arroyo Cimmaron, alt. 470 m., Trinidad Mountains, Santa Clara, 5 March, 1910, *N. L. & E. G. Britton*, no. 5085 (TYPE, in herb. N. Y. Bot. Gard.; and in Gray Herb.). A slender and attractive species, which should be readily recognized by its exceptionally short pappus.

Var. **extentum**, var. nov., valde caulescens; caulibus 3 dm. vel ultra longitudine gracilibus foliosis; foliis oppositis; internodiis plerisque 1-5 cm. longis; pedunculis 6-8 cm. longis; aliter formae typicae simillimum.—CUBA: Rocky and shady banks of Iguaño River, Santa Clara, 11 Aug. 1915, *Brothers León & Clement*, no. 5419 (TYPE, in herb. N. Y. Bot. Gard.; phot. in Gray Herb.).

Eupatorium bullescens, spec. nov., fruticosum 6-10 dm. altum; caule tereti gracili virgato usque ad apicem folioso striatulo puberulo; foliis sessilibus oppositis ovato-lanceolatis acuminatis serratis firmissimis basi rotundatis vel saepius brevissime cordatis a basi trinerviis glabris supra bullatis lucidis minute reticulato-venulosis subtus paullulo pallidioribus opacis nervosis puncticulatis 4-6.8 cm. longis 1.3-2.4 cm. latis internodia valde superantibus; inflorescentia laxa paniculata terminali folioso-bracteata, ramis gracilibus obscure puberulis; patentibus pedicellis 2-8 mm. longis filiformibus; capitulis parvis 6-9-floris; involucri squamis ca. 7 subaequalibus oblongis obtusis dorso obscure puberulis ca. 2.2 mm. longis post fructus delapsum persistentibus et deflexis, disco parvo levissime convexo glabro; corollis glabris tubulatis sursum leviter ampliatis ca. 2 mm. longis, dentibus limbi 5 deltoideis suberectis; acheniis gracilibus fuscis minute granulatis ca. 2 mm. longis; pappi setis ca. 20 sordide albidis corollam subaequantibus.—CUBA: on rocks, gorge of the Rio Yamui, Oriente, 7-9 December, 1910, *J. A. Shafer*, no. 7808 (TYPE, in herb. N. Y. Bot. Gard., photograph and fragments in Gray Herb.); also in pine lands, alt. 420 m., near El Cuéro, Oriente, 10-19 March, 1912,

N. L. Britton & J. F. Cowell, no. 12,763 (herb. N. Y. Bot. Gard.; photograph in Gray Herb.).

Eupatorium epaleaceum (Gardn.), comb. nov. *Chromolaena epaleacea* Gardn. in Hook. Lond. Jour. Bot. vi. 436 (1847). *Eupatorium lupulinum* Bak. in Mart. Fl. Bras. vi. pt. 2, 301 (1876).

EUPATORIUM HAVANENSE HBK., var. **domingense** (DC.), comb. nov. *E. ageratifolium* γ ? *domingense* DC. Prod. v. 173 (1836).

EUPATORIUM KLEINIOIDES HBK., var. **lasiolepis**, var. nov., formae typicae simile differt praecipue involucri squamis dorso conspicue pubescentibus, pilis tenuibus attenuatis curvato-adscendentibus vel irregulariter patentibus.—Tropical BRAZIL, Burchell, no. 6885 (TYPE, in Gray Herb.).

EUPATORIUM LEUCOCEPHALUM Benth., var. **anodontum**, var. nov., formae typicae habitu inflorescentia floribus etc. simile differt foliis paullo angustioribus lanceolatis omnino integerrimis.—White-flowered shrub 2–3 m. high in clayey soil, alt. 1000 m., at La Victoria, near the boundary between Michoacan and Guerrero, Mexico, 23 March, 1899, *E. Langlassé*, n. 961 (TYPE, in Gray Herb.).

EUPATORIUM MAIRETIANUM DC., var. **adenopodium**, var. nov., caule apicem versus et ramis et ramulis et pedicellis ubique dense glanduloso-puberulis fusciscentibus nec ut apud formam typicam canescenti-arachnoideis; aliter formam typicam simillimum.—GUATEMALA: Cerro Quemado, Quezaltenango, 21 January, 1915, alt. 2440 m., *Prof. E. W. D. Holway*, no. 98 (TYPE, in Gray Herb.).

EUPATORIUM PULCHELLUM HBK., var. **angustifolium** Wats. in herb. according to Pringle, *Plantae Mexicanae*, 1889, 2nd [unnumbered] page of the printed list, also on the labels.—This marked variety, recognized by Dr. Sereno Watson, seems never to have been characterized. It may be described as follows: statura habitu inflorescentia formae typicae simile differt foliis elongato-lanceolatis 8–10 cm. longis 1–1.8 cm. latis adscendentibus vel modice patentibus nec deflexis inconspicue serratis vel subintegris sparse in nervis venisque hispidulis utrinque viridibus, supremis angustissimis.—MEXICO: slopes of cañons near Guadalajara, Jalisco, 4 October, 1889, *C. G. Pringle*, no. 2315 (TYPE, in Gray Herb.); barranca of Rio Blanco near Guadalajara, alt. 1375 m., 30 September, 1903, *Pringle*, no. 11,524 (Gray Herb.). Easily recognized by its long narrow ascending leaves 5–8 times as long as wide, while in the typical form they are mostly deflexed and rarely 3 times as long as broad, being furthermore inclined to be more deeply serrate and tending to be distinctly paler beneath.

Eupatorium pycnocephaloides, spec. nov., suffrutescens in ar-

bustis alte scandens pubescens; caulibus teretibus striatis flexuosis purpurascentibus internodiis ad 1.8 dm. longis; foliis oppositis petiolatis ovato-deltoides acuminatis 5-6.5 cm. longis 4-4.8 cm. latis crenato-serratis basi subtruncatis membranaceis a basi trinerviis utrinque viridibus supra appresse puberulis subtus praecipue in nervis venisque laxe pubescentibus, petiolo 2-3.5 cm. longo; paniculis terminalibus oppositirameis foliaceo-bracteatis, ramis late patentibus; capitulis 15-20-floris in capitibus terminalibus convexis vel subglobosis laxe glomeratis, pedicellis 2-4 mm. longis filiformibus pubescentibus; involucri subcylindrici basi turbinato-campanulati 6-7 mm. alti squamis ca. 3-seriatis valde inaequalibus viridibus plus minusve purpurascentibus striatis dorso pubescentibus, extimis brevibus ovatis acuminatis, intermediis oblongis acutis, intimis lineari-oblongis apice obtusis; corollis albis vel roseis glabris 5-nerviis (nervis a basi ad sinum inter dentes percurrentibus) anguste tubulatis sine faucibus distinctis 4 mm. longis, limbi dentibus 5 deltoideis 0.3 mm. longis; achaeniis atrobrunneis 1.7 mm. longis in angulis et inter eos sursum hispidulis; pappi setis ca. 25 albis tenuibus quam corolla paullo brevioribus.—GUATEMALA: Climbing over shrubs, Sololá, alt. 2135 m., 28 January, 1915, *Prof. E. W. D. Holway*, no. 144 (TYPE, in Gray Herb.); Volcan de Agua, Antigua, alt. 2135 m., 13 January, 1915 (in bud), *Holway*, no. 83 (Gray Herb.). A species somewhat resembling *E. pycnocephalum* Less., but much larger, the involucre bracts more pubescent, the outer narrower and more acute.

Var. **glandulipes**, var. nov., pedicellis et involucri squamis glanduloso-puberulis; flosculis roseis; achaeniis subglabris faciebus lucidis costis solis paullo sursum hispidulis.—GUATEMALA: Totonicapam, alt. 2440 m., 24 January, 1915, *Prof. E. W. D. Holway*, no. 106 (TYPE, in Gray Herb.).

Eupatorium rhexioides, spec. nov., laxe caespitosum glabriusculum stragulum 1 m. diametro formans; caulibus elongatis apicem versus ramosissimis flexuosis angulato-striatis; internodiis inferioribus elongatis ad 1.5 dm. longitudine superioribus multo brevioribus vix 1 cm. longis; ramis valde flexuosis plerisque alternis in inflorescentias racemosas terminantibus; foliis parvis deflexis ovato-lanceolatis vel lanceolato-ellipticis, inferioribus oppositis, ramealibus plerisque alternis ca. 2 cm. longis 6-9 mm. latis crassiusculis utrinque glabris subtus paullo pallidioribus 3-nerviis punctulatis integris vel utroque latere obtuse 2-3-dentatis acutiusculis margine plus minusve revolutis basi cuneatis, petiolo 1-3 mm. longo; racemis plus minusve compositis bracteatis; bracteis inferioribus foliis similibus superioribus gradatim

reductis linearibus pedicellos (2-7 mm. longos) obscure puberulos longitudine paullo superantibus; capitulis parvis ca. 12-floris; involucri vix imbricati squamis 7-10 linearibus acutis minute puberulis crassiusculis maturitate stellatim patentibus ad 5 mm. longis; flosculis 6.8 mm. longis; corolla tubiformi granulata sursum paullo ampliata 3.6 mm. longa, limbi dentibus deltoideis brevibus patentibus; antheris apice cum appendice ovata membranacea munitis; achaeniis gracilibus deorsum attenuatis ca. 3.2 mm. longis 5-angulatis costulis secundariis 1-2 inter costas primarias hinc inde interjectis; pappi setis sordidis ca. 30 vix barbellatis tenuibus corollam aequantibus.—CUBA: moist banks, on the trail from Camp La Barga (alt. 450 m.) to Camp San Benito (alt. 900 m.), Oriente, 22-26 February, 1910, *J. A. Shafer*, no. 4105 (TYPE, in herb. N. Y. Bot. Gard.; photograph and fragment in Gray Herb.).

EUPATORIUM SCHULTZII Schnittspahn, Zeitschr. d. Gartenbauvereins z. Darmst. 1857, p. 6. This species appears to have four distinguishable forms, which may be briefly characterized as follows:

Forma **typicum**, pedicellis dense cum glandulis capitatis numerosissimis puberulis, pilis paucis non capitatis hinc inde interspersis; involucri squamis albidis, intermediis elliptico-oblongis apice rotundatis glabris vel subglabris non ciliatis.—Represented in the Gray Herbarium as follows: material cultivated in the Darmstadt Botanical Garden and authoritatively labeled by Schultz himself; also VERA CRUZ: Mirador, *Liebmann*, no. 41, *Sartorius* (without number); Zacuapan, *Purpus*, no. 2372; CHIAPAS: *C. & E. Seler*, no. 2219; COSTA RICA: Ojo de Agua, *Hoffmann*, no. 394, Rodeo de Pacaca, *Pittier*, no. 3285, slopes of Rodeo, at 1100 m. altitude, *Pittier*, no. 1600; GUATEMALA: Cubelquitz, Depart. Alta Verapaz, alt. 350 m., *von Tuerckheim*, no. 7888.

Forma **erythranthodium**, forma nova, formae typicae simile sed differt conspicuiter involucri squamis pulchriter purpureis.—GUATEMALA: Coban, altitude 1350 m., *von Tuerckheim*, no. II. 2090 (TYPE, in Gray Herb.).

Forma **velutipes**, forma nova, formae typicae simile differt pedicellis velutino-tomentellis vix vel solum obsolescente glandulosis.—GUATEMALA: San Lucas Toliman, Sololá, altitude 1560 m., 2 February, 1915, *Prof. E. W. D. Holway*, no. 170 (TYPE, in Gray Herb.); Depart. Guatemala, alt. 1525 m., *J. D. Smith*, no. 2373; on the volcano of Tecuamburro, Depart. Santa Rosa, alt. 2135 m., *Heyde & Lux*, no. 4515 (distrib. of J. D. Smith).

Var. **ophryolepis**, var. nov., pedicellis dense cum glandulis capitatis

puberulis; involucri paullo quam eo formae typicae imbricatori, squamis purpureo-viridibus striatis, exterioribus intermediisque plus minusve acutatis, intermediis ciliatis.—GUATEMALA: in woods, Volcan de Atitlan, Sololá, alt. about 2135 m., Prof. E. W. D. Holway, no. 187 (TYPE, in Gray Herb.).

Eupatorium Shaferi, spec. nov., herbaceum vel vix basi paullo molliter lignescens glabrum 3-4 dm. altum; caule basi paullo decumbens fistuloso purpureo-brunneo ad mediam partem folioso; foliis oppositis ovato-vel lanceolato-oblongis utroque acuminatis serratis utrinque glaberrimis subtus paullo pallidioribus 4-8 cm. longis 2-3.5 cm. latis pinnativeniis; petiolo 1-1.5 cm. longo supra canaliculato; panicula parva 4 cm. solum diametro sub-6-capitulata vel ampliori 3-chotoma 1 dm. diametro multicapitulata; bracteis oblanceolato-linearibus, bracteolis lineari-subulatis; pedicellis ca. 1 cm. longis adscendentibus obscurissime puberulis; capitulis 1 cm. diametro 15-20-floris; involucri 2-3-seriati squamis subaequalibus laxè imbricatis oblongis obtusis vel apice rotundatis ciliolatis quam flosculis dimidio brevioribus post fructum delapsum persistentibus et reflexis, disco maturitate leviter convexo glabro; corollis glabris tubulatis sursum modice gradatimque ampliatis 3 mm. longis purpureis; achae-niis 5-angulatis deorsum decrescentibus basi substipitatis glabris aetate fuscis pallide costatis 2.8 mm. longis; pappi setis simplicibus tenuibus sordide albis achae-nium longitudine subaequantibus.—CUBA: on rocks by water near top of falls, Arroyo del Medio, Oriente, alt. 450-550 m., 20 December, 1909, J. A. Shafer, no. 3227a (TYPE, in herb. N. Y. Bot. Gard., photograph and fragments in Gray Herb.); also on rocks by water, same locality, date, and collector, no. 3227 (herb. N. Y. Bot. Gard.; photograph and fragments in Gray Herb.).

EUPATORIUM URTICAEFOLIUM Reichard, var. **angustatum** (Gray), comb. nov. *E. ageratoides* L.f., var. *angustatum* Gray, Syn. Fl. i. pt. 2, 101 (1884). *E. angustatum* (Gray) Greene, Pitt. iv. 277 (1901). *Kyrstenia angustata* (Gray) Greene, Leaf. i. 8 (1903).

EUPATORIUM VITIFOLIUM (Sch. Bip.) Klatt, Leopoldina, xx. 90 (1884). *Hebeclinium vitifolium* Sch. Bip. ex Klatt, l. c. To the synonymy of this rare and little known Mexican species may be added *Bulbostylis triangularis* DC. Prod. vii. 268 (1838) and *Carphephorus triangularis* (DC.) Gray, Pl. Wright i. 86 (1852) ex Hemsl. Biol. Cent.-Am. Bot. ii. 109 (1881). The type-specimens, both of DeCandolle's and of Klatt's species, are exceedingly fragmentary, yet material is sufficient to show close correspondence in general contour, dentation, size, and venation of the leaf, open divaricately branched panicle,

largish heads with narrow unequal acute involucreal scales passing inward into narrow somewhat readily deciduous paleae. The achenes are 4-5-angled as described by DeCandolle and the species is therefore referable to *Eupatorium* rather than to *Brickellia*. With *Carphephorus*, notwithstanding the presence of a few paleae on the outer part of the disk, the species appears to have no close affinity. The older specific name (*triangularis*) having been already several times employed for other species of *Eupatorium*, cannot be here revived. The only difference noted between the type of *E. vitifolium* and that of *Bulbostylis triangularis* is that in the single leaf of the latter, still preserved in the DeCandollean herbarium, the base is essentially truncate, while in the Liebmann plant, upon which Klatt's species was founded, the leaf-base, though in the main outline truncate, is slightly cordate at the insertion of the petiole. In consideration of the close correspondence in all other features observed, this one slight difference is believed to be merely individual. At all events, until the plants can be examined in more complete specimens even a varietal separation seems unwise.

Brickellia cymulifera, spec. nov., subherbacea 3-4 dm. alta: caulibus gracilibus teretibus foliosis plus minusve decumbentibus crispe puberulis, internodiis 3-8 cm. longis; foliis oppositis graciliter petiolatis hastato-deltoides caudato-acuminatis grosse dentatis basi cordatis utrinque viridibus sparse crispeque puberulis, laminis 3-5.4 cm. longis 2.5-3.8 cm. latis, petiolo 1-4 cm. longo; cymis oppositis laxe patentibus 3-5-capitulatis in axillis a parte media caulis (vel etiam a parte inferiori) usque ad apicem orientibus, pedunculis subfiliformibus crispe puberulis 2-3.5 cm. longis in media parte bracteas binas foliaceas ovatas acuminatas integras gerentibus et ad apicem bracteolis binis parvis linearibus munitis; pedicellis filiformibus crispe puberulis saepe bracteolatis 4-15 mm. longis; capitulis (valde immaturis) ca. 12-floris 6 mm. altis et diametro; involucri turbinato-campanulati squamis ca. 17 convexis viridibus vel atro-purpureis tenuiter striatis ciliolatis apice rotundatis, extimis dorso puberulis orbiculatis, intermediis ovato vel obovato-oblongis dorso subglabris, intimis oblanceolato-oblongis; corollis (immaturis) cylindricis sparse granulatis 5-dentatis; achaeniis (immaturis) obconicis tomentellis; pappi setis 40-50 valde inaequalibus barbellatis albis.— MEXICO: Minas de San Rafael, San Luis Potosi, November, 1910, *Dr. C. A. Purpus*, no. 4802 (TYPE, in Gray Herb., the same number also examined in herb. Mo. Bot. Gard.).

CONYZA SOPHIAEFOLIA HBK. Nov. Gen. et Spec. iv. 72, t. 326

(1820). To the synonymy of this species may be added *Erigeron canadensis* as cited in J. D. Sm. Enum Pl. Guat. iv. 78 (1895), as to no. 6152.

Verbesina Holwayi, spec. nov., ut videtur herbacea erecta robusta; caule tereti medullosa glabro purpurascenti-brunneo exalato levissime striatulo usque ad inflorescentiam laxo folioso; foliis alternis ovato-deltaeideis utroque latere 1-2-lobatis supra rugosis cum venis impressis reticulatis cum pilis brevissimis albidis scaberrimis subtus paullo pallidioribus viridibus molliter tomentellis ad 1.8 dm. longis 1.4 dm. latis, petiolo ad 9 cm. longo late alato (2 cm. latitudine) basi auriculato-amplexicauli, lobis folii inaequalibus ovato-oblongis plus minusve falcatis 3-5 cm. longis 3 cm. latis apice rotundatis margine irregulariter serrato-dentatis, lobo terminali multo majori subacuminato, costa media subtus prominente, venis pinnatis in petiolo transversis in lamina prorsus curvatis; foliis superioribus gradatim reductis lanceolatis, bracteis ultimis spatulatis vel linearibus minimis; panicula ampla 3 dm. diametro plana multicapitulata sordide puberula vel tomentella, ramis et pedicellis (8-14 mm. longis) adscendentibus; capitulis (fructigeris) contiguis ovoideis ca. 8 mm. diametro 1 cm. altis ca. 25-floris ut videtur discoideis; involucri squamis extimis linearibus inaequalibus dorso sordide pubescentibus acutiusculis, intimis spatulato-oblongis carinatis mucronulatis in media parte subherbaceis pubescentibus margine utroque tenuioribus subchartaceis; paleis similibus; disco conico; acheniis nigris 3.2 mm. longis bialatis in faciebus pallide tuberculatis, alis albidis ciliolatis; aristis 2 erectis 1.5 mm. longis tenuibus barbellatis.—GUATEMALA: Quezaltenango, alt. 2290 m., January, 1915, *Prof. E. W. D. Holway*, no. 96 (TYPE, in Gray Herb.). This species is probably referable to § *Lipactinia* Robinson & Greenman, Proc. Am. Acad. xxiv. 563 (1899), though in the fruiting material at hand it is difficult to be sure of the absence of rays. It would seem to be most naturally placed near *V. auriculata* DC. Prod. v. 617 (1836) with which it agrees in many points, though it is readily distinguished by its different inflorescence and lobed leaves.

Liabum sublobatum, spec. nov., caule tereti (exsiccatione) striato-ruguloso puberulo brunnescenti ad inflorescentiam laxo patenteque folioso; foliis oppositis late ovato-rhomboideis acuminatis hastato-subtrilobatis mucronulato-dentatis (dentibus inaequalibus) basi integris cuneatis in petiolum acuminate decurrentibus supra laete viridibus glabris subtus arachnoideo-tomentosis 1-1.3 dm. longis 7-9 cm. latis paullo supra basin 3-nervatis; petiolo ca. 5 cm. longo supra canaliculato puberulo subtus rotundato aetate suberoso-ruguloso; panicula

laxe fastigiata 1.5 dm. diametro convexa vel subpyramidali multi-capitulata, ramis ramulisque adscendentibus fusco-puberulis, bracteis inferioribus foliaceis, bracteolis multo reductis lanceolato-subulatis plus minusve connatis sordide tomentosis ca. 3-4 mm. longis; pedicellis 4-5 mm. longis gracilibus rectis; capitulis discoideis 1.3 cm. altis ca. 9 mm. diametro ca. 8-floris; involucri turbinato-campanulati 4-seriati squamis oblongis apice rotundatis dorso striatulis purpureo-viridibus vix puberulis margine obscure ciliatis extimis brevibus sub-orbiculari-ovatis; corollis laete flavis 8 mm. longis glabris, tubo proprio gracili in fauces gradatim ampliato, dentibus limbi 5 lanceolatis recurvatis; acheniis glabris crassiusculis; pappi setis albidis obscure barbellatis ca. 6 mm. longis (paucis extimis ter brevioribus).— GUATEMALA: San Lucas Toliman, Sololá, 2 February, 1915, alt. 1665 m., Prof. E. W. D. Holway, no. 179 (TYPE, in Gray Herb.). A species near *L. glabrum* Hemsl., but readily distinguished by its somewhat lobed leaves and puberulent inflorescence.

III. CERTAIN BORRAGINACEAE, NEW OR TRANSFERRED.

By J. FRANCIS MACBRIDE.

IN the course of ordering up portions of the *Borraginaceae* at the Gray Herbarium it has become necessary from time to time to make new names and new combinations of names in order to have the work conform to the International Rules of Botanical Nomenclature. In addition, an attempt to classify the unnamed material in some of the groups has led to the discovery of a few species and varieties apparently undescribed. It seems advisable, therefore, to place these matters on record at this time.

Tournefortia Miquelii, nom. nov.—*T. syringaeifolia* Miquel, Stirp. Surin. 137 (1850), not *T. syringaeifolia* Vahl, Symb. Bot. iii. 23 (1794), a name which must be revived to replace the more generally used but later synonym *T. laurifolia* Vent. Choix Pl. 2 (1803).

Tournefortia Aubletii, nom. nov.—*T. glabra* Aubl. Pl. Guian. i. 118 (1775), not *T. glabra* L. Sp. Pl. 141 (1753), which must replace *T. cymosa* L. Sp. Pl. ed. 2, 202 (1762).

Heliotropium fragrans, nom. nov.—*H. odorum* (Fres.) Gürke, Nat. Pflanzenf. iv. Ab. 3, 96 (1893). *Helioophytum odorum* Fres. in Mart. Fl. Bras. viii. pt. 1, 45 (1857), not *Heliotropium odorum* Balf. f. Proc. Roy. Soc. Edinb. xii. 81 (1884). Article 53 of the International Rules states that: "When a species is moved from one genus into another, its specific epithet must be changed if it is already borne by a valid species of that genus." Therefore *H. odorum* Fres. requires a new name on being transferred to *Heliotropium* because of the presence there of *H. odorum* Balf. f., a valid species which cannot, according to these rules, be renamed *H. Balfouri* as has been done by Gürke, l. c.

Heliotropium foliosissimum, spec. nov., multicaule decumbens subgriseo-pubescent; radice et caudice lignescentibus atrobrunneis; caulibus 5–14 flexuosis gracilibus basi ad apicem aequabiliter foliosis-simus 3–12 cm. longis; foliis elliptico-oblongis margine vix revolutis obtusis nunc alternis nunc suboppositis vel irregulariter dispositis 5–10 mm. longis 2–4 mm. latis; racemis bracteatis brevibus; calycis laciniis oblongo-ovatis; corollae tubo calycem non superante; nucibus strigosis.—SOUTHERN MEXICO in the State of Oaxaca: Hacienda Blanca, July 25, 1895, *L. C. Smith*, no. 627 (TYPE, in Gray Herb.);

sterile hills, Telixtlahuaca, July 27, 1895, *L. C. Smith*, no. 471; near Oaxaca, July 26, 1896, *C. Conzatti*, no. 157, in part; gravelly soil near Oaxaca, July 3, 1900, *Charles C. Deam*, no. 11; Cerro San Antonio, June 26, 1906, *C. Conzatti*, no. 1411. These specimens were labeled *H. limbatum* Benth., but that species is a more canescent plant of rigid erect habit, and with narrower longer leaves (10–15 mm. long, 1.5–2 mm. wide) and almost glabrous nutlets. The aspect, too, is very different both from the dissimilar manner of growth and because the stems of *H. limbatum* are leafiest at the base, where the leaves persist, while in *H. foliosissimum* the stems are equably leafy and the lower leaves soon die.

Heliotropium jaliscense, spec. nov., suffruticosum erectum, ramis hispidis et adpresse strigillosis; foliis petiolatis ovato-lanceolatis subacuminatis basi attenuatis integerrimis 5–10 cm. longis 2–3 cm. latis utrinque strigillosis et subtus in nervis hispidis; racemis flexuosis gracilibus ebracteolatis pedunculatis; pedunculis subterminalibus; calycis lobis hispidis latitudine inaequalibus subacuminatis; corollae tubo calycem ca. 2 mm. superante; corolla 3.5–4 mm. longa; antherae media in parte tubi insertae; stigmatate late conico basi annulato stylum vix superante; nuculis 4 glabris forsan maturitate reticulatis.—MEXICO: bushy slopes near San Sebastian, Jalisco, March 16–19, 1897, *E. W. Nelson*, no. 4083 (TYPE, in Gray Herb.). A species bearing a superficial resemblance to *H. parviflorum* L. but by style and fruit characters a member of the section *Euheliotropium*.

HELIOTROPIUM PHYLLOSTACHYUM Torr., var. **erectum**, var. nov., caulibus erectis 1–4 dm. altis; foliis oblongo-lanceolatis 1–3 cm. longis ca. 3 mm. latis; corollae tubo calycem superante, limbo 3–5 mm. lato.—MEXICO: Culiacan, Sinaloa, Oct. 24, 1904, *T. S. Brandege* (TYPE, in Gray Herb.); between Guichocovi and Lagunas, Oaxaca, June 27, 1895, *E. W. Nelson*, no. 2743; Real de Guadalupe, Sept. 14, 1898, *E. Langlassé*, no. 351; near Cuernavaca, Morelos, July 25, 1896, *C. G. Pringle*, no. 7183; near Iguala, Guerrero, Sept. 22, 1905, *C. G. Pringle*, no. 13,681; Yucatan, 1895, *G. F. Gaumer*, no. 790. *H. phyllostachyum* Torr. in its typical form is a low (rarely 1 dm. high) diffusely spreading plant with short broad leaves and inconspicuous flowers, the corolla 1.5–2 mm. long, scarcely exceeding the calyx. It is mostly of more northern range than the variety, although it has been secured at Manzanillo, Colima, by Dr. Palmer (no. 891) and at Guaymas (no. 232). No. 891 is quite typical but no. 232 represents a transition to the variety in its erect habit. Because of these facts it seems best to give the southern plant varietal rather than specific rank.

Omphalodes lateriflora (Aubrey), comb. nov.—*Cynoglossum lateriflorum* Aubrey, Prog. Morb. x. 25 (1801–1803). *O. littoralis* Lehm. Neue Schrift. Nat. Fr. Berl. viii. 98 (1818).

Solenanthus turkestanicus (Reg. & Smirn.), comb. nov.—*Kuschakewiczia turkestanica* Regel & Smirn. Act. Hort. Petrop. v. 626 (1877). *Solenanthus Kuschakewiczi* Lipsky, Act. Hort. Petrop. xxiii. 182 (1904). As Lipsky has well shown, this plant possesses no characters which justify its being maintained as a genus distinct from *Solenanthus* Ledeb. He, however, as indicated above, failed to retain the original specific name.

Solenanthus stamineus (Desf.), comb. nov.—*Cynoglossum stamineum* Desf. Ann. Mus. Par. x. 431 (1807). *Solenanthus Tournefortii* DC. Prod. x. 164 (1846). DeCandolle rightly gives *Cynoglossum stamineum* Bieb. Fl. Taur.-Cauc. iii. 127 (1819) a new name under *Solenanthus*, namely *S. Biebersteinii*, but there seems to be no need for discarding the much earlier *C. stamineum* of Desfontaines.

Lappula laxa (G. Don), comb. nov.—*Cynoglossum laxum* G. Don Gen. Syst. iv. 356 (1838). *C. uncinatum* Royle ex Benth. in Royle, Ill. i. 305 (1839). *Echinosperrum glochidiatum* A. DC. Prod. x. 136 (1846). *Paracaryum glochidiatum* Benth. ex Hook. f. Fl. Brit. Ind. iv. 161 (1885). *Rindera glochidiata* Wall. Cat. no. 926, nomen nudum. DeCandolle (l. c.) was the first to assign this plant to its proper genus, but it had been previously published by George Don as indicated above. It is of interest that the specimens in the Gray Herbarium are marked "Good *Echinosperrum*" in Dr. Gray's handwriting.

LAPPULA REDOWSKII (Hornem.) Greene, var. **Karelini** (Fisch. & Mey.), comb. nov.—*Echinosperrum Karelini* Fisch. & Mey. Ind. Sem. Hort. Petrop. xi. 67 (1846). *E. Redowskii* (Hornem.) Lehm., var. *Karelini* (Fisch. & Mey.) Regel, Act. Hort. Petrop. vi. 341 (1880). As indicated by Regel (l. c.), like the typical form of the species, but having the sides and faces of the nutlets nearly or quite smooth. The related American species, *L. texana* (Scheele) Britton, shows a variation analogous to this.

Lappula omphaloides (Schrenk), comb. nov.—*Echinosperrum omphaloides* Schrenk, Bull. phys.-math. Acad. Sci. St.-Petersb. iii. 211 (1845). I must concur in the opinion expressed by Lipsky, Act. Hort. Petrop. xxvi. 567 (1910), that this is a good species of the genus *Lappula* (*Echinosperrum*). The correct combination, however, does not seem to have been made.

Allocarya glabra (Gray), comb. nov.—*Lithosperrum glabrum* Gray, Proc. Am. Acad. xvii. 227 (1882). *Allocarya salina* Jepson,

Fl. West.-Middle Calif. ed. 1, 442 (1901). Mrs. Brandegee, Zoe, v. 94-95, called attention to the true relationship of this plant as long ago as 1901, suggesting that it might be an introduction. More recently Prof. Jepson (l. c.) redescribed it from the Alvarado salt marshes. Although the label on Lemmon's specimen (the original) bears the notation "Arizona," the specimen probably came, as Mrs. Brandegee remarks, from California. Dr. Gray compared his species to *L. incrassatum* Guss. which is a good *Lithospermum* and which consequently bears only a superficial resemblance to *A. glabra*. The Old World plant at maturity develops a similarly fistulose-enlarged rhachis and callous-thickened calyx, but it has the fruit, the flowers and the aspect of other members of the genus. The nearest relative of *A. glabra* is *A. stipitata* Greene. Mrs. Brandegee doubts if the former is anything more than "a swollen form" of the latter. The swollen character is a very noticeable, but not by any means, it would seem, the strongest difference. However this may be, *glabra* is the older name and must be used regardless of the disposition one may make of *A. stipitata*.

Allocarya tenuicaulis (Phil.), comb. nov.—*Eritrichium tenuicaule* Phil. Linnaea, xxix. 18 (1857). *E. uliginosum* Phil. Anal. Univ. Santiago, xliii. 519 (1873). *Krynitzkia trachycarpa* Gray, Proc. Am. Acad. xx. 266 (1885). *Allocarya diffusa* Greene, Pitt. i. 14 (1887). When Dr. Gray described this plant (l. c.) he referred to it two Chilean specimens remarking that "it may be suspected to be the *Lithospermum muricatum* of Ruiz & Pavon, and probably it may have other specific names; none of them, however, can be safely adopted." Two years later Dr. Greene (l. c.) transferred the *Krynitzkia* species belonging to his new genus and maintained the name *trachycarpa* "as to the Californian plants only," at the same time making the new combination *A. uliginosa* (Phil.) Greene, with the notation "*Krynitzkia trachycarpa* Gray as to the Chilean specimens doubtless." Reiche in his Flora de Chile (1910) has defined the *Allocaryas* of that country, and has definitely shown that Ruiz & Pavon's plant is not ours (a conclusion reached by Dr. Greene, l. c.). He treats the North American plant, however, as a synonym of the earlier *E. uliginosum*, thus following the opinion of Dr. Gray, who evidently assigned the new name *trachycarpa* because he had at that time no means of knowing what name should be rightly taken up. The Reed specimen, which he cited, is probably *A. sessiliflora* (Poepp.) Greene, but the Harvey one corroborates Reiche's treatment. Unfortunately this much named plant has never been properly christened even yet. We are given the

synonym *E. tenuicaule* Phil. in the Flora de Chile, but for some reason the author of that work used the much later *E. uliginosum* Phil. It is true that the former name is not desirable but since it is perfectly tenable, it must be used. For the complicated synonymy see the Flora de Chile, where Reiche gives the citations of some of the named forms of this rather variable species.

Allocarya linifolia (Lehm.), comb. nov. — *Anchusa linifolia* Lehm. Asperif. 215, no. 158 (1818). *A. oppositifolia* & *pygmaea* HBK. Nov. Gen. et Spec. iii. 91-92 (1818). *Krynitzkia linifolia* (Lehm.) Gray, Proc. Am. Acad. xx. 266 (1885). From these names of the same date between which priority cannot be determined I have used the name selected by Dr. Gray (l. c.) and have followed his interpretation of the species. Our specimens are from Peru, Ecuador, and Bolivia.

ALLOCARYA LINIFOLIA (Lehm.) Macbr., var. **Kunthii** (Walp.), comb. nov. — *Anchusa Kunthii* Walp. Nov. Act. Nat. Cur. xix. 372 (1843). *Antiphytum Walpersii* A. DC. Prod. x. 122 (1846). *Eritrichium Walpersii* (A. DC.) Wedd. Chlor. And. ii. 90 (1859). The foliar characters given by the authors cited — the much longer and more uniformly linear leaves — seem to be the only differences between this plant and *A. linifolia*; the nutlets are the same.

EREMOCARYA MICRANTHA (Torr.) Greene, var. **lepida** (Gray), comb. nov. — *Eritrichium micranthum* Torr., var. *lepidum* Gray, Syn. Fl. ii. pt. 1, 193 (1878). *E. lepida* (Gray) Greene, Pitt. i. 59 (1887). The variety is confluent with the species, as pointed out by Dr. Gray, Proc. Am. Acad. xx. 275 (1885). The nutlet variation is nicely illustrated by Abrams's no. 2904, Aug. 5, 1902, which is typical of the variety as first described except that some of the plants have smooth and lustrous nutlets. The description of the species given in the Synoptical Flora calls for either "smooth and shining or dull and punctulate-scabrous" fruits. In the type-specimens these are smooth and Dr. Rydberg has segregated those having rough nutlets as *E. muricata* Rydb. Bull. Torr. Bot. Club, xxxvi. 677 (1909). Unfortunately a co-type specimen, viz. Parry, no. 164, collected in 1874, has perfectly smooth nutlets. Evidently the character has no specific value in this genus, since the large-flowered plant (var. *lepida*) shows the same variation, and since herbarium material seems to indicate that the smooth- and rough-fruited forms grow intermingled. Furthermore, if one maintains the rough-fruited form of the small-flowered plant as a species (*E. muricata*) we need yet another species for the rough-fruited form of the large-flowered plant.

Greeneocharis dichotoma (Greene), comb. nov.—*Krynitzkia dichotoma* Greene, Bull. Calif. Acad. i. 206 (1885). The original collection from western Nevada is the only representation of this species at the Gray Herbarium; other specimens so referred belong rather to the widely distributed and somewhat variable *G. circumscissa* (H. & A.) Rydb. The latter is canescent with a more or less appressed-strigose pubescence, especially on the stems and branches. A plant with fine widely spreading hairs and scarcely, if at all, strigose-canescens has been collected at an elevation of 3050 m., while the typical form seldom attains half this altitude. This high-mountain variation may be known as

GRENEOCHARIS CIRCUMCISSA (H. & A.) Rydb., var. **hispida**, var. nov., *hispida* vix strigoso-canescens; pilis patentibus.—Specimen examined: CALIFORNIA: trail to Mt. Whitney, August 13, 1904, Culbertson, no. 4243 (TYPE, in Gray Herb.).

Plagiobothrys catalinensis (Gray), comb. nov.—*P. arizonicus* (Gray) Greene, var. *catalinensis* Gray, Syn. Fl. ii. pt. 1, 431 (1886). Besides differing from *P. arizonicus* in the open fruiting-calyx with ovate lobes and the duller rougher nutlets (as pointed out by Dr. Gray, l. c.), *P. catalinensis* has other distinguishing features. Mature nutlets are only 1.5 mm. long, dark in color, the rugae obscure and not at all acute, the ventral keel low and narrow, and the caruncle small. Mature nutlets of the former plant are nearly or quite 2.5 mm. long, light (almost white) in color, the rugae very distinct and acute, and the ventral keel and caruncle usually prominent. Moreover the spikes of the mainland plant are usually interruptedly bracteate or even naked above; the spikes of the insular species are uniformly bracteate throughout.

OREOCARYA VIRGATA (Porter) Greene, forma **spicata** (Rydb.), comb. nov.—*O. spicata* Rydb. Bull. Torr. Bot. Club, xxxvi. 678 (1909). Although the surface-character of the nutlets is generally diagnostic in this genus, the smooth-fruited plant represented by the above name is surely not worthy even varietal rank, let alone specific. The nutlets of *O. virgata* vary greatly in the degree of roughness; and plants with more or less roughened fruits and those with perfectly smooth fruits that grow together in the region of Pike's Peak are otherwise indistinguishable.

OREOCARYA MULTICAULIS (Torr.) Greene, var. **cinerea** (Greene), comb. nov.—*O. cinerea* Greene, Pitt. iii. 113 (1896). The only character that distinguishes this is the pubescence. As in the typical form the color of the nutlets and the height of the stems amount to

nothing. It is very doubtful if the several segregate species proposed in this group can be maintained as they are founded on these or other characters equally trivial. However, the variation treated here is so striking in its extreme form that it is worthy varietal designation. Since Dr. Greene failed to indicate any definite specimen, the following representative collections are noted. Specimens examined: COLORADO: plains, Pueblo, 1873, *Edward L. Greene* (TYPE). NEW MEXICO: Mogollon Mountains, on the middle fork of the Gila River, Socorro Co., August 9, 1903, *O. B. Metcalf*, no. 431. ARIZONA: vicinity of Flagstaff, June 4, 1898, *Dr. D. T. MacDougal*, nos. 40, 204. MEXICO: Casas Grandes, Chihuahua, May 13, 1899, *E. A. Goldman*, no. 407.

OREOCARYA SUFFRUTICOSA (Torr.) Greene, var. **abortiva** (Greene), comb. nov.—*O. abortiva* Greene, Pitt. iii. 114 (1896). *Krynitzkia multicaulis* Torr., var. *abortiva* (Greene) Jones, Contrib. W. Bot. xiii. 5 (1910). Jones (l. c.) has pointed out that the incurving of the nutlets is a characteristic common to all members of the group. When only one nutlet forms (as is sometimes the case in this plant and also in others) the ventral keel is larger than when more mature. It then, of course, seems to end even more abruptly. The Californian plant simply represents an extreme in this matter. It is otherwise allied to *O. suffruticosa* rather than to the other species of the group. See the remarks by Parish, Eryth. vii. 95 (1899), which further prove the plant to be unworthy specific rank.

Oreocarya virginensis (Jones), comb. nov.—*Krynitzkia glomerata* (Pursh) Gray, var. *virginensis* Jones, Contrib. W. Bot. xiii. 5 (1910). Very distinct from *O. glomerata*, which has narrowly ovate not at all winged nutlets. Besides the specimens from La Verkin and Diamond Valley, Utah, cited by Mr. Jones, another from the same region, viz.: no. 173 by *Dr. C. C. Parry*, 1874, is of this species.

OREOCARYA SERICEA (Gray) Greene, Pitt. i. 58 (1887).—*O. humilis* (Gray) Greene, l. c. iii. 112 (1896)? *Krynitzkia sericea* Gray, var. *fulvocanescens* Jones, Proc. Calif. Acad. Sci. ser. 2, v. 710 (1895). *Eritrichium glomeratum* (Pursh) DC., var. ? *fulvocanescens* Wats. Bot. King Exped. 243 (1871) in part, not *E. fulvocanescens* Gray, Proc. Am. Acad. x. 61 (1875) i. e. *Krynitzkia echinoides* Jones, l. c. 709. Mr. Jones (l. c.) assigned a new name to the plant collected by Fendler in New Mexico and labeled in herb. by Dr. Gray "*E. fulvocanescens*," on the ground that the name must be applied to a very different plant collected by Watson in Nevada (no. 853), because this was the plant for which the name was first published. It is true that Watson took his no. 853 to be Gray's *fulvocanescens* in herb.; but the first specific

use of the name was by Dr. Gray (l. c.) and although he cited Watson's variety as a synonym his description is entirely based on Fendler's plant. Furthermore, Article 47 of the International Rules states, "When a species . . . is divided into two or more groups of the same nature, if one of the forms was distinguished or described earlier than the other, the name is retained for that form." The name *fulvocanescens* must apply, then, to Fendler's plant, since it was first distinguished and first described as a species. Accordingly it is rather the plant collected by Watson and wrongly included by him in his description of *fulvocanescens* as a variety of *glomerata* which needs the new name unless already described. The latter alternative seems to represent the truth. Jones (l. c.) and Greene (l. c. 111) were evidently writing about the same plant; and when Dr. Gray proposed the name *sericea* he included under it his earlier *Eritrichium glomeratum*, var. *humile*. The material in the Gray Herbarium would indicate that he was justified in this; but Dr. Greene in using the name specifically, wrote "*E. glomeratum*, var. *humile* Gray in part." Therefore, if *O. humilis* Greene is distinct from *O. sericea*, the Watson plant from Nevada discussed above must bear the former rather than the latter name.

Oreocarya oblata (Jones), comb. nov.—*Krynitzkia oblata* Jones, Contrib. W. Bot. xiii. 4 (1910). Very distinct from all other species having long white corollas. *O. Shockleyi* Eastw. and *K. mensana* Jones are the only other members of its immediate group. The latter is probably a good species, nearer the former than is *O. oblata*, but I have seen no specimen. *O. oblata* probably is not uncommon in Arizona, New Mexico, and Texas. Specimens examined: TEXAS: among rocks (corolla white), El Paso, March, 1851, *George Thurber*, no. 147, Sept. 1884, *Marcus E. Jones*, 1881, *G. R. Vasey*, March, 1885, *Asa Gray*. NEW MEXICO: 1851–52, *C. Wright*, no. 1566, in part.

CRYPTANTHA BARBIGERA (Gray) Greene, var. **inops** (Brandegee), comb. nov.—*Krynitzkia barbiger* Gray, var. *inops* Brandegee, Zoe, v. 228 (Sept. 1906). Mrs. Brandegee on one of her labels has rightly cited as synonyms of the above variety, *C. nevadensis* Nels. & Kenn. and *C. arenicola* Heller, published two and three months later respectively. The very slender acuminate nutlet is the principal character of the variety. The muriculations, especially near the tip of the fruit, are often very sharp. A specimen collected by Dr. Gray in the Grand Cañon in 1885 and included by him in the species must now be referred to the variety.

